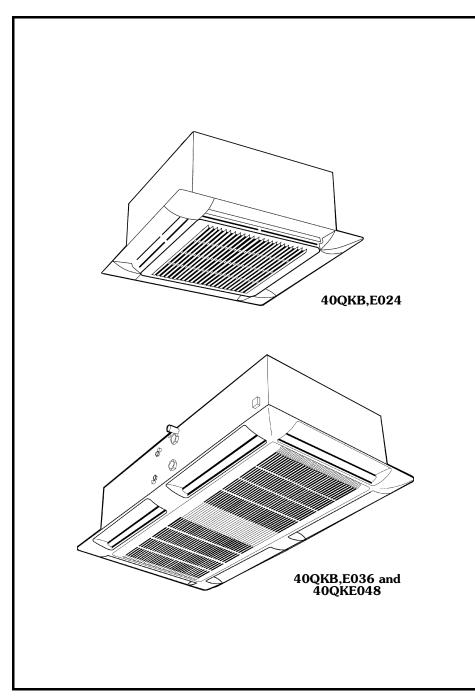


Product Data

40QKB024,036 40QKE024,036,048 Cooling Only and Heat Pump In-Ceiling Cassettes

2 to 4 Nominal Tons



The 40QK Energy-Efficient In Ceiling Cassette fan coil incorporates innovative technology to provide reliable performance. Built into these units are features most desired by the industry today, including SEER ratings of up to 11.3 when matched with Duct-Free System Condensing units. All models are listed with UL, UL, Canada, ARI, and CEC. With a wide range of accessories available to meet a variety of installation requirements, the 40QK series is ideal for retrofits and modernizations with suspended ceilings and can be installed in standard 2 ft x 2 ft and 2 ft x 4 ft grids.

Features/Benefits

Technology and components

The high-efficiency two or three-row heat exchanger has mechanically expanded copper tubes with continuous aluminum fins. The coil connections are made of brass.

Fan motor

The direct-drive fan with backward curved blades has a three-speed permanent split capacitor motor with built-in thermal protection, regulated by an electronic thermostat. The motor is installed on spring antivibration mounts. This fan blade design ensures uniform airflow through the heat exchanger.

Diffusers

Four-way air distribution gives individual comfort. For localized control, each diffuser may be adjusted or even shut down completely. The special design of the diffusers ensure rapid blending of the supply and room air. Conditioned air is directed along the ceiling, then evenly distributed throughout the room. Return air enters the cassette unit through a large grille. It is then



cleaned by an easily removable, washable synthetic filter.

Controls

A choice of three different thermostats is available, suitable for installation on a wall. The Solid-State Electronic Thermostat is available in Slim Line (cooling only, heat pump, heat and cool systems), Flat Stat (cooling only and heat and cool systems) and a 5-1-1 Programmable (cooling only and heat and cool systems). Thermostat features include three-speed manual setting or Auto., and Auto. changeover.

Secure operation

If security is an issue, outdoor and indoor units are connected only by refrigerant piping and wiring to prevent intruders from crawling through ductwork.

Fast installation

Carrier's compact systems take only a few hours to install, since only wire and piping need to be run. The fast and easy installation ensures minimal disruption to customers in the home or workplace. This is an added advantage of Carrier's systems, especially in retrofit situations.

Built-in reliability

Carrier split system units are designed to provide years of trouble-free operation with features such as freeze protection, branch ducting capability, fresh air intake and 24-volt controls.

Model number nomenclature

40QK SERIES COOLING ONLY AND HEAT IN CEILING CASSETTES

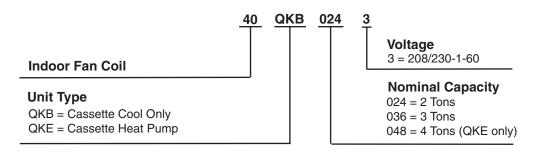


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ARI* capacity ratings



ARI CAPACITIES IN-CEILING CASSETTE APPLICATIONS

40QKB IN-CEILING CASSETTES WITH 38HDC, HDL UNITS

INDOOR SECTION	OUTDOOR SECTION	STD CFM	COOLING (Btuh)	TOTAL kW	SEER	EER
40QKB024	38HDC018	525	18,300	1.76	11	10.4
	38HDL018	525	17,800	1.68	11.4	10.8
	38HDL030	915	29,000	2.87	11.1	10.4
	38HDL036	915	34,400	3.45	10.5	9.9
40QKB036	38HDC024	915	24,000	2.2	11	10.9
40QKD030	38HDL024	915	24,000	2.12	11.8	11.3
	38HDC030	915	30,000	3.13	10.8	9.6
	38HDC036	915	33,000	3.14	10.8	10.5

40QKB IN-CEILING CASSETTES WITH 38HDS UNIT

INDOOR SECTION	OUTDOOR SECTION	STD CFM	COOLING (Btuh)	SEER	EER	CHARGE (lb)	HEATING kW
40QKB024	38HDS024-3	24,000	1,000	12.0	11.3	4.1	2.22

40QKE IN-CEILING CASSETTES WITH 38QR UNITS

INDOOR SECTION	OUTDOOR SECTION	STD CFM	COOLING (Btuh)	TOTAL kW	SEER	EER	HEATING HIGH (Btuh)	HEATING HIGH (COP)	HEATING HIGH (HSPF)	HEATING LOW (Btuh)	HEATING LOW (COP)
40QKE024	38QR018C	525	18,000	2	10	9	17,600	3.04	6.8	11,000	2
40QKE036	38QR024C	980	25,000	2.44	10.7	10.2	23,800	3.34	7.6	13,400	2.3
40QKE030	38QR030C	980	29,000	2.61	11.5	11.1	27,000	3.27	7.6	15,900	2.3
40QKE048	38QR036C	1100	33,000	3.47	10.5	9.5	33,000	3.3	6.8	20,000	2.2

40QKE IN-CEILING CASSETTES WITH 38HDC, HDL, HDS UNITS

INDOOR SECTION	OUTDOOR SECTION	STD CFM	COOLING (Btuh)	SEER	EER	CHARGE (lb)	HEATING kW
40QKE024	38HDC018-3	525	17,800	10.5	10.1	5.8*	1.8
40QKEU24	38HDL018-3	525	17,800	11.2	10.6	3.9	1.8
40QKE024	38HDS024-3	525	23,000	12.0	10.8	4.1	2.0
	38HDC024-3	980	23,800	11.5	8.3	4.8	2.7
40QKE036	38HDL024-3	980	24,000	11.0	11.3	4.6	2.7
40QKE036	38HDC030-3	980	29,800	12.0	10.4	5.2	2.7
	38HDL030-3	980	29,000	10.9	10.1	5.6	2.7
40QKE048	38HDC036-3,5,6	1100	33,800	11.5	9.7	5.8	2.7
40QKE046	38HDL036-3	1100	34,800	10.3	10.0	6.0	2.7

LEGEND

Air Conditioning & Refrigeration Institute
Coefficient of Performance
Dry Bulb
Heating Seasonal Performance Factor
Wet Bulb ARI

COP

HSPF

wb

* 3-phase unit.

Cooling Standard: 80 deg F db, 67 deg F wb air entering evaporator and 95 deg F db air entering condenser. High Temperature Heating Standard: 70 deg F db air entering evaporator and 47 deg F db, 43 F wb air entering condenser. Low Temperature Heating Standard: 70 deg F db air entering evaporator and 17 deg F db, 15 F wb air entering condenser. Total kW is for total system, including compressor and outdoor and indoor fan motors

motors.

Ratings are based on 25 ft of interconnecting refrigerant lines.

All system ratings are based on fan coil units operating at high fan speed. Consult Physical Data tables for airflows at all available fan speeds.

Sound ratings

SOUND DATA (A Weighted)

LINUT	SOUND PRESSURE	FAN SPEED	SOUND POWER		SOUND POWER DATA OCTAVE BAND (dBa)					
UNIT	(dBa)	FAN SPEED	(dBa)	125	250	500	1000	2000	4000	8000
40QKB024	45.3	High	56.3	32.1	45.0	51.2	54.1	46.5	45.0	36.5
	39.9	Medium	50.9	42.0	44.1	48.0	47.5	42.2	37.3	36.8
	38.8	Low	49.8	40.9	43.0	46.9	46.4	41.1	36.2	35.7
40QKB036	43.8	High	54.8	45.0	45.8	50.9	51.8	47.4	38.8	32.9
	37.2	Medium	48.2	35.5	40.2	46.1	45.2	39.0	29.9	28.7
	29.9	Low	40.9	31.2	37.8	40.3	37.0	26.5	24.5	27.3
40QKE024	45.3	High	56.3	32.1	45.0	51.2	54.1	46.5	45.0	36.5
	—	Medium	—	—	—	—	—	—	—	—
	—	Low	—	—	—	—	—	—	—	—
40QKE036	43.8	High	54.8	45.0	45.8	50.9	51.8	47.4	38.8	32.9
	37.2	Medium	48.2	35.5	40.2	46.1	45.2	39.0	29.9	28.7
	29.9	Low	40.9	31.2	37.8	40.3	37.0	26.5	24.5	27.3
40QKE048	48.1	High	59.1	40.2	45.8	54.8	56.0	51.5	47.7	39.8
	42.9	Medium	53.9	45.0	47.1	51.0	50.5	45.2	40.3	39.8
	—	Low	—	—	—	—	—	—	—	—

ARI — Air Conditioning and Refrigeration Institute
 dBa — Decibels on the A Scale

- Sound power levels are tone corrected values taken in accordance with ARI Sound Standard 350.
- Sound pressure data is measured 1 m away from the unit.

Ratings are net values reflecting the effects of circulating fan heat. Supplemental electric heat is not included. Ratings are based on:

Field-installed accessories



ACCESSORY PART NUMBERS

ACCESSORY	PART NO.
Slim Line Thermostat	53DFS250-SL
Flat Stat Thermostat	53DFS250-FS
NP - Thermostat	53DFST2-NP
Discharge Grille (024)	40QK900215
Discharge Grille (036-048)	40QK900216
Fresh Air Intake Kit	53DS-900067
Power Vent Fan for Fresh Air Intake	53DS-900066
Remote Room Sensor Kit	33CSSEN-WB

Slim Line thermostat is a specially designed programmable thermostat for Duct-Free Systems that incorporates 3-speed control, auto-changeover, backlight, locking keypad and large LCD (liquid crystal display). Can be used on cooling only, heat pumps and heat cool systems.

Flat Stat is a specially designed programmable thermostat for duct-free systems that incorporates 3-speed control, auto-changeover, backlight, locking keypad and large LCD and is mounted flush to the wall. Can be used on cooling only and heat cool systems.

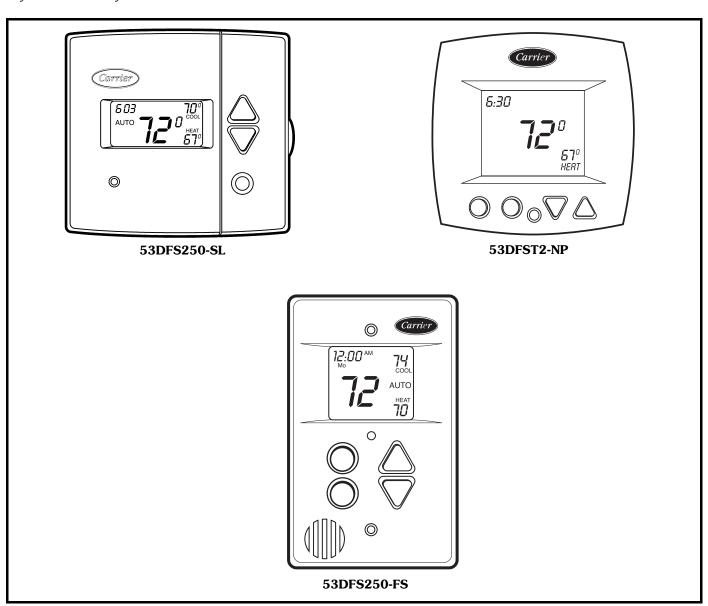
NP - Thermostat is a specially designed programmable thermostat for Duct-Free Systems that incorporates 3-speed control, 5-1-1 day schedule, auto-changeover, backlight, locking keypad and large LCD. Can be used on cooling only and heat/cool systems.

Discharge grilles are required to allow air discharge and return of room air for proper operation.

Fresh air intake kit provides for a variable amount of outdoor air to be mixed with the conditioned air.

Power vent fan for fresh air intake allows up to 15% outdoor air to be supplied to the conditioned space.

Remote room sensor kit is designed to sense the air temperature at a remote location and send this information by digital communication to the thermostat.



Physical data



40QK IN-CEILING CASSETTE UNITS — COOLING ONLY AND HEAT PUMP MODELS

LINUT 400K	400	QKB		40QKE	
UNIT 40QK	024	036	024	036	048
NOMINAL CAPACITY (Tons)	1.5	3	2	3	4
OPERATING WEIGHT (lb)	61.6	105.8	66.1	105.8	118.8
MOISTURE REMOVAL (pts/hr)	7	9.6	7	8.6	9.6
REFRIGERANT TYPE	R-22	R-22	R-22	R-22	R-22
METERING DEVICE	Note #3	AccuRater® Device	AccuRater Device	AccuRater Device	AccuRater Device
CHARGE (Lb) Note #2	Note #4	6.0	5.5	5.9	5.9
INDOOR FAN (Direct Drive) High Rpm/Cfm Med Rpm/Cfm Low Rpm/Cfm Air Throw ft (high fan) Watts Quantity Hp	1190/525 930/415 840/400 22 100 1	970/915 790/745 635/635 20 180 2	1190/525 930/430 840/400 22 100 1	970/915 790/745 635/635 20 160 2	1180/1100 920/ 880 830/ 680 20 180 2
BLOWER WHEEL Quantity Size (in.)	1 10 x 8	2 10 x 8	1 10 x 8	2 10 x 8	2 10 x 8
INDOOR COIL DATA Face Area (sq ft) No. Rows FPI Circuits	2.66 3 14 4	5.67 2 14 4	2.66 3 14 4	5.67 2 14 4	5.67 2 14 4
FILTERS (Cleanable) Quantity Size (in.)	1 16.5 x 16.5	2 16.5 x 16.5	1 16.5 x 16.5	2 16.5 x 16.5	2 16.5 x 16.5
REFRIGERANT LINES Connection Type Liquid Line (in. OD) Vapor Line (in. OD) Max Length, Lift & Drop	Flare 3/ ₈ 5/ ₈ Note #1	Flare ^{3/} 8 ^{3/} 4 Note #1	Flare ³ / ₈ ⁵ / ₈ Note #1	Flare ^{3/} 8 ^{3/} 4 Note #1	Flare 3/ ₈ 3/ ₄ Note #1
CONDENSATE DRAIN Connection Size (in.)	Hose 1.0 dia	Hose 1.0 dia	Hose 1.0 dia	Hose 1.0 dia	Hose 1.0 dia
CONTROLS (Solid State) Wall Stat Freeze Protection Defrost Method Warm Start Auto Changeover Auto Restart Diagnostics Timer Mode (Start/Stop) Test Mode Dehumidification Mode Fan Speeds Control Voltage	Yes N/A N/A N/A Yes Yes† 24 Hr† Yes N/A H/M/L/Auto	Yes N/A N/A N/A N/A Yes Yes 24 Hr† Yes N/A H/M/L/Auto	Yes Yes * Time/Temp N/A Yes Yes Yes† 24 Hr† Yes N/A H/M/L/Auto	Yes Yes * Time/Temp N/A Yes Yes Yes† 24 Hr† Yes N/A H/M/L/Auto	Yes Yes * Time/Temp N/A Yes Yes Yes† 24 Hr† Yes N/A H/M/L/Auto
System Voltage	208/230 v	208/230 v	208/230 v	208/230 v	208/230 v
GRILLE FINISH	Ceiling White	Ceiling White	Ceiling White	Ceiling White	Ceiling White

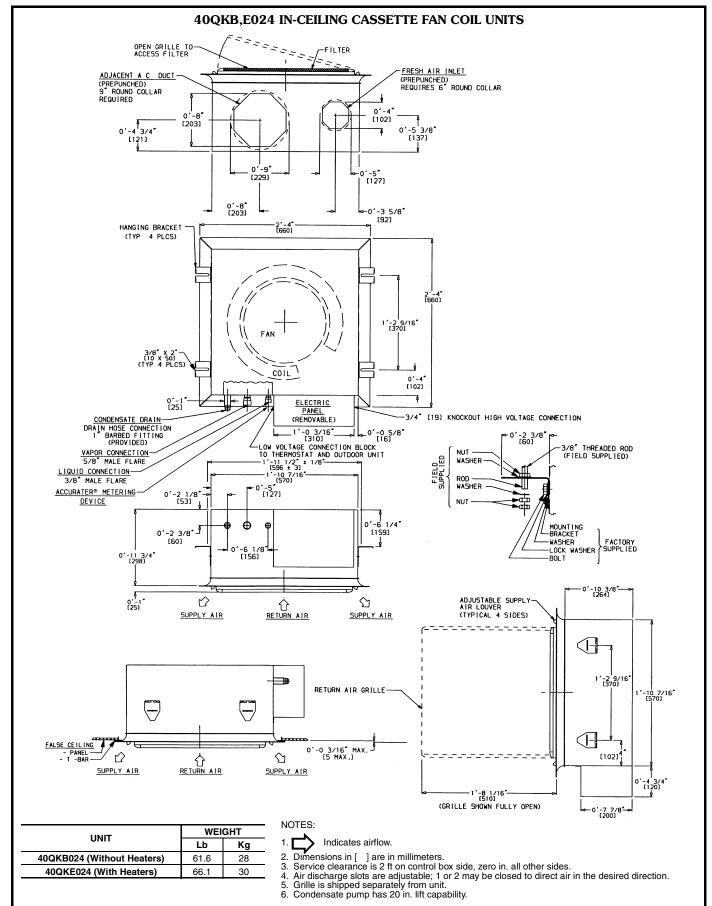
^{*}Through outdoor unit low-pressure switch.

- See matching condenser for line lengths.
 Cooling only units are shipped with a full factory charge in the outdoor unit based on 25 ft of refrigerant lines. Heat Pump units are shipped with a holding charge.
 AccuRater device when matched with 38HDC,HDL, TXV when matched with 38HDS.
 When matched with 38HDC,HDL 4.8 lb. When matched with 38HDS 5.0 lb.

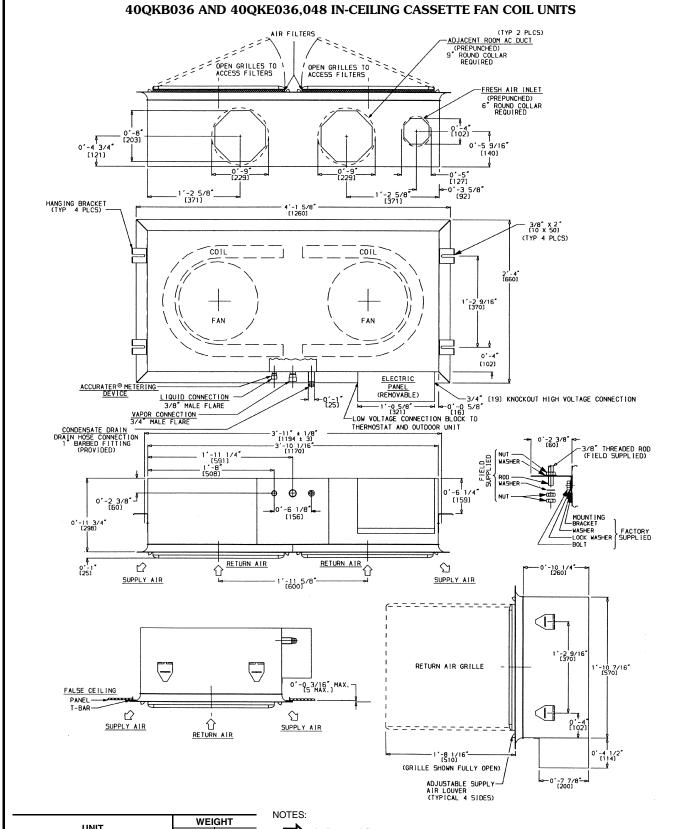
[†]With recommended thermostat.

Base unit dimensions









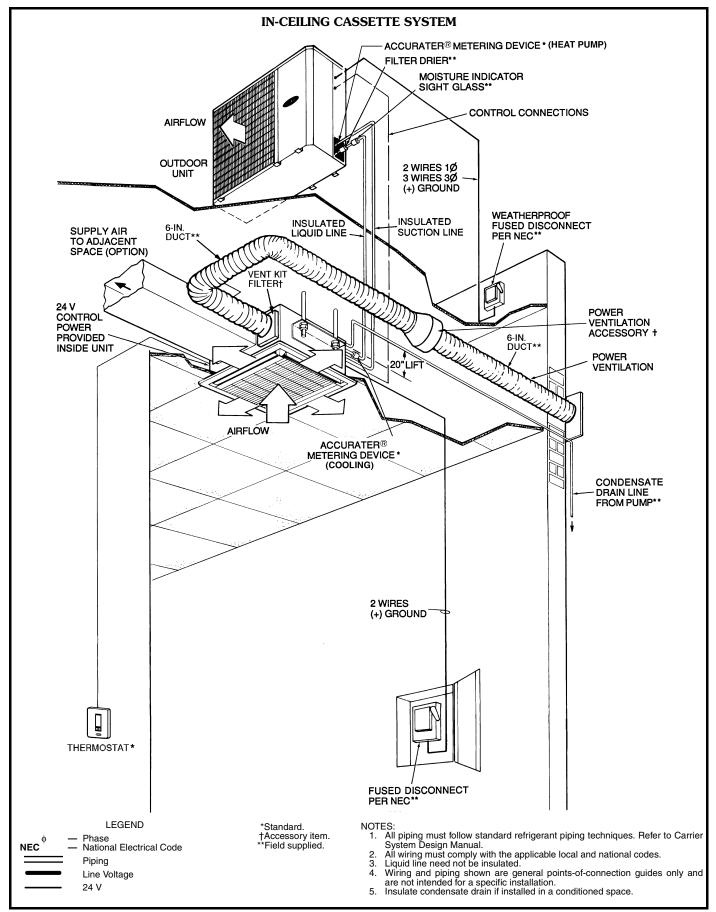
UNIT	WEI	GHT
UNII	Lb	Kg
40QKB036	105.8	48
40QKE036	114.4	52
40QKE048	118.8	54

- Indicates airflow.

- Dimensions in [] are in millimeters.
 Service clearance is 2 ft on control box side, zero in. all other sides.
 Air discharge slots are adjustable; 1 or 2 may be closed to direct air in the desired direction.
 Grille is shipped separately from unit.
 Condensate pump has 20 in. lift capability.

Typical piping and wiring





Application data



UNIT COMBINATIONS, PISTON SIZE AND REFRIGERANT CHARGE **COOLING ONLY CASSETTE**

INDOOR UNIT	OUTDOOR UNIT	ARI CAPACITY* (Btuh)	ACCURATER® PISTON NO.	CHARGE (Ib) NOTE 1
400KB034+	38HDC018-3	18,300	52	4.8**
40QKB024†	38HDL018-3	17,800	52	3.9
	38HDC024-3	24,000	62	5.4
	38HDL024-3	24,000	62	4.6
	38HDC030-3	30,000	63	5.2
40QKB036	38HDL030-3	29,000	63	5.6
40QKD030	38HDC036-3	33,000	65	6.0**
	38HDC036-5	33,000	65	6.0**
	38HDC036-6	33,000	65	6.0**
	38HDL036-3	34,400	65	6.0**

HEAT PUMP CASSETTE

INDOOR UNIT	OUTDOOR UNIT	ARI CAPACITY* COOLING (Btuh)	ARI CAPACITY* HEATING (Btuh)	ACCURATER PISTON (Indoor)	ACCURATER PISTON (Outdoor)	CHARGE (Ib) NOTE 1
40QKE024	38QR-018C-3	18,000	17,600	51	49	5.5
40QKE036	38QR-024C-3	25,000	23,800	61	49	5.9
40QKE036	38QR-030C-3	29,000	27,000	63	55	5.9
	38QR-036C-3	32,000	33,000	67	59	5.9
40QKE048	38QR-036C-5	32,000	33,000	67	59	8.0
	38QR-036C-6	32,000	33,000	67	59	8.0

HEAT/COOL CASSETTE

INDOOR UNIT	OUTDOOR UNIT	ARI CAPACITY* (Btuh)	ACCURATER PISTON NO.	CHARGE (lb) NOTE 1
40QKE024	38HDC018-3	17,800	52	5.8**
40QNE024	38HDL018-3	17,800	52	3.9
	38HDC024-3	23,800	62	4.8
40QKE036	38HDL024-3	24,000	62	4.6
40QNE030	38HDC030-3	29,800	63	5.2
	38HDL030-3	29,000	63	5.6
40QKE048	38HDC036-3,5,6	33,800	67	5.8
40QNE046	38HDL036-3	34,000	67	6.0

LEGEND

†The 024 size unit shown is configured as an 018 size unit changing the motor speed fan tap plug. **Combination may require additional charge.

- Charge is based on 25 ft of interconnecting tubing. Charge may need to be added for longer runs.
 Cooling units shipped with a full charge. Heat Pumps are shipped with a holding charge.
 For expanded ratings see matching condenser product data catalog.
 Air entering evaporator 80 F dry bulb. Air entering evaporator 72 F wet bulb.

SYSTEM OPERATING CONDITIONS

FAN COIL UNIT (40QK)	TEMP (F)
Maximum Room Temperature	95
Minimum Room Temperature	55
Maximum Return Air Dry-Bulb Wet-Bulb	85 72
Minimum Return Air (Heat Pump)	28
Maximum Saturated Suction Temperature	55
Minimum Saturated Suction Temperature	27

^{*}ARI — Air Conditioning and Refrigeration Institute

Application data (cont)



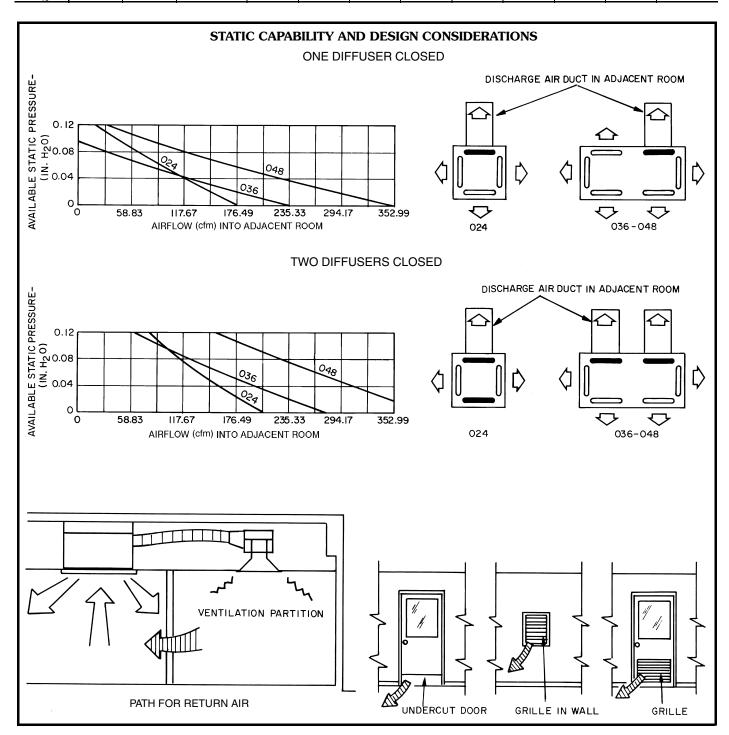
Fresh air and ducting

The in-ceiling cassette fan coil units may bring in up to 20% fresh air. This 20% maximum should not be exceeded. A power ventilation kit is available to overcome ventilation duct static. See Power Ventilation Kit Available Static Pressure table below.

The in-ceiling cassette fan coil units may have an extension duct installed. See Static Capability and Design Considerations figure on this page.

POWER VENTILATION KIT AVAILABLE STATIC PRESSURE

FAN	WATTS	RPM	M VOLTAGE	CFM AT STATIC PRESSURE (in. wg)						DUCT		
HP WAITS	WAIIS			0	1/8	1/4	³ / ₈	1/2	3/4	1	11/2	DIA. (in.)
1/15	150	2700	208/230	370	335	318	298	256	219	189	112	6



Electrical data



ELECTRICAL DATA

UNIT	VOLTS-PHASE	VOLTAGE		FAN	HEA	HEATER		POWER SUPPLY		
40QK	(60 Hz)	Min	Max	FLA	kW	FLA	MCA	MOCP	FLA	WIRE SIZE
B024-3	208/230-1	187	253	0.44	_	_	0.55	15	0.44	14
B036-3	208/230-1	187	253	0.44	_	_	1.10	15	0.88	14
E024-3	208/230-1	187	253	0.44	1.80*	7.50	0.6/9.4	15/15	7.94	14/14
E036-3	208/230-1	187	253	0.78	2.70*	11.25	1.0/15.0	15/15	12.80	14/14
E048-3	208/230-1	187	253	1.04	2.70*	11.25	1.3/15.0	15/15	12.03	14/14

LEGEND

FLA — Full Load Amps
LRA — Locked Rotor Amps
MCA — Minimum Circuit Amps
MOCP — Maximum Overcurrent Protection Amps

- 1. Two MCA, MOCP, and minimum wire size values are shown for units with separate unit and heater circuits.
 - The first value applies to the unit circuit and the second applies to the heater circuit.
- 2. Two fan motors are used on the 40QKB036, 40QKE036 and 40QKE048 units.

Typical wiring schematics

LEGEND AND NOTES FOR TYPICAL WIRING SCHEMATICS, 40QK SERIES COOLING ONLY AND HEAT PUMP IN-CEILING CASSETTES

LEGEND

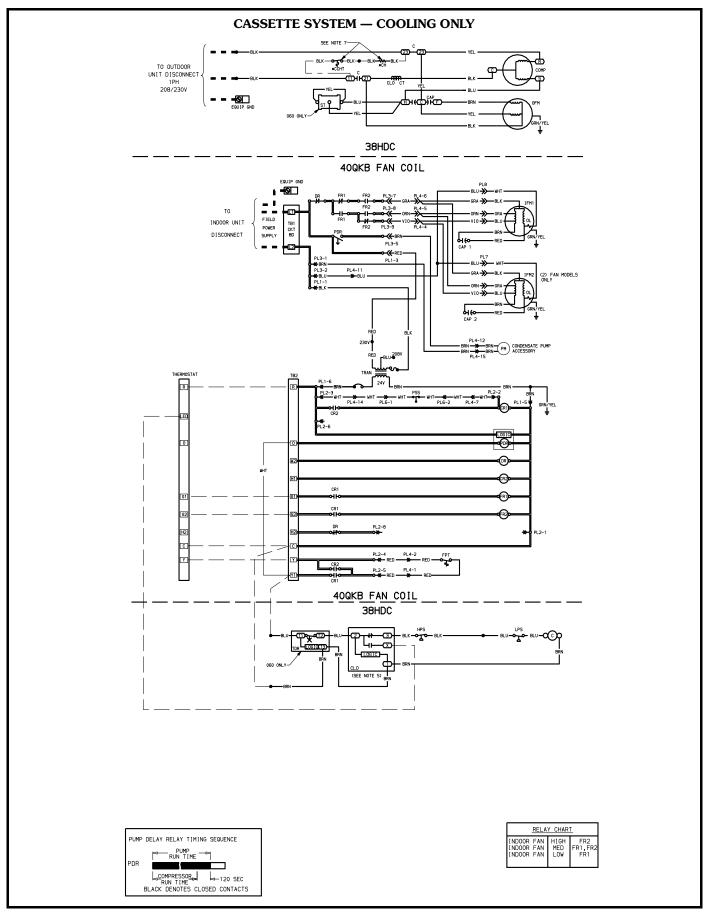
NOTES:

- If any of the original wire furnished must be replaced, it must be replaced with type 90 C wire or its equivalent.
 Wire in accordance with National Electrical Code (NEC) and local codes.
 The CLO locks out the compressor to prevent short cycling on compressor overloads and safety devices. Before replacing CLO, check these other devices. A minimum 1 amp turn is required to hold contacts closed.
 A thermistor wiring cable is provided with the fan coil unit.
 Compressor and fan motors are protected by internal thermal overloads.
 Transformer has an internal 2 amp thermal fuse on the primary side.

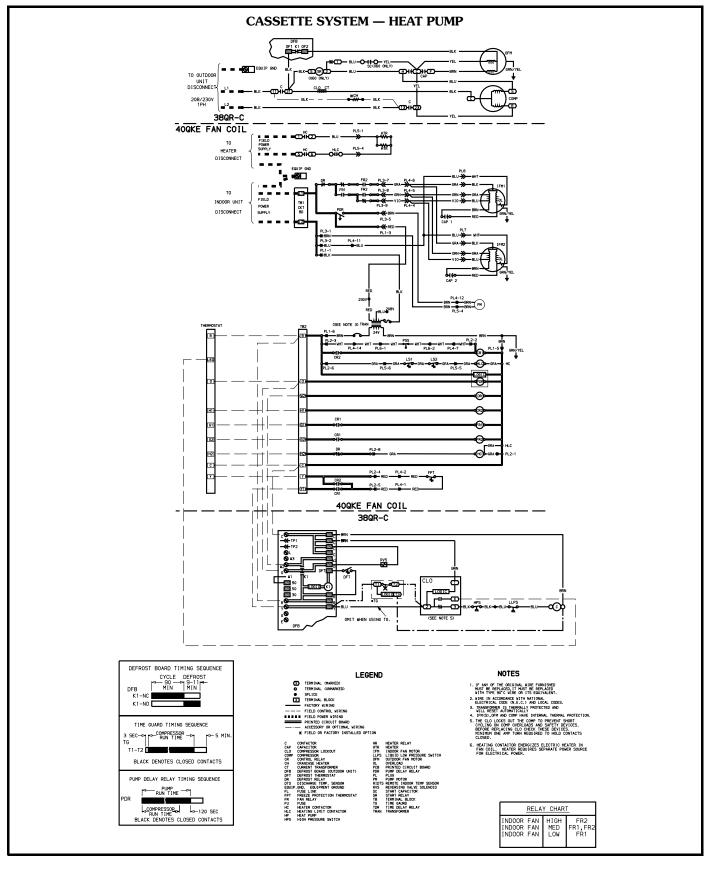
^{*}Separate unit and heater circuits required.

Typical wiring schematics (cont)



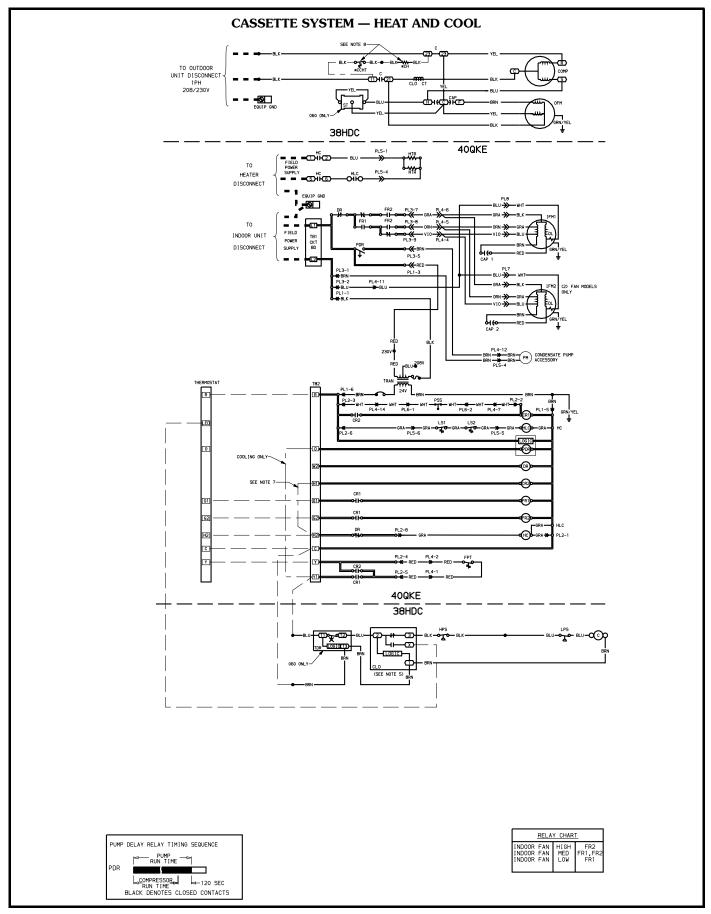






Typical wiring schematics (cont)





Controls



Operating mode memory

After the system is turned off or after a power failure, the system remains in the last operating mode selected. When the system is turned back on, or when power is automatically restored, operation continues in the same operating mode as when the system shut down.

Automatic operation (auto) mode

If auto mode is selected, the system automatically switches over the operating mode from heating to cooling, or from cooling to heating depending on the selected temperature. Auto. mode also controls fan speed if not manually overridden.

NOTE: Between the cooling cycle and the heating cycle there is a neutral zone of approximately 2° F above and 2° F below the selected temperature when only the fan is operating.

Operating sequence

The fan coil units have a terminal board which controls system operation in response to the room thermostat. The user may manually select any one of 3 fan speeds for unit operation. Systems may be equipped with an accessory power ventilation kit and have a factory-installed condensate pump.

Fan operation — See selected Thermostat instructions for fan operation controls.

Cooling mode operation — When the room thermostat senses a demand for cooling, the fan coil relay board is energized. The indoor fan(s) will start in the selected speed. The reversing valve will energize and switch to the cooling position. The internal condensate pump runs whenever the reversing valve is energized and/or the unit is in cooling. As long as the condensate float switch and freeze protection thermostat are closed, the cooling relays in the fan coil unit will close. This energizes the compressor and outdoor fan in the outdoor unit. The compressor will continue to operate until the room thermostat is satisfied. When the cooling demand is satisfied, the compressor and outdoor fan will stop. If the system is in the AUTO mode, the indoor fan will stop with the compressor. If the unit has the accessory ventilation kit, the ventilation fan will operate whenever the indoor fan is set for medium or high speed.

Heat pump operation — When the room thermostat senses a demand for heating, the fan coil relay board is energized. The indoor fan will start in the selected speed (if not already operating), and the reversing valve will not be energized. The internal condensate pump and freeze protection thermostat are not operated during heating

operation. The control relay closes, and the compressor and outdoor fan are energized through the defrost board (DFB), which is located in the outdoor unit. The logic in the DFB is energized when the compressor starts, and the defrost timer runs. Once every 90 minutes (factory default setting) of compressor run time, the DFB logic checks the defrost thermostat (DFT). If the DFT is open, the unit continues in heating operation. If the DFT is closed, the DFB switches the unit to defrost mode. The timing on the DFB may be set at either 30, 50, or 90 minutes.

Defrost — The DFB energizes the RVS (reversing valve solenoid), and the reversing valve energizes and switches to the cooling position. The relay on the DFB opens and the outdoor fan stops. The contact on the DFB is also energized, which in turn energizes the defrost relay on the fan coil relay board, turns off the electric heater and stops the indoor fan. The DFB logic checks the 10-minute defrost timer and the DFT. If the DFT opens in less than 10 minutes, the DFB switches the unit back to normal heating operation. If the DFT remains closed the DFB switches the unit back to heating operation after 10 minutes. When the DFB changes back to heating mode, the RVR (reversing valve relay) is deenergized and the reversing valve switches back to heating operation. Both the outdoor and indoor fans come back on, and if necessary, the electric heater also turns on.

System safeties — The system is equipped with the following safety devices to protect system components:

Indoor coil freeze protection thermostat (cooling cycle only) — If a coil temperature of 28 F or lower is sensed, the compressor and outdoor fan will be shut down until the coil temperature exceeds 28 F. The indoor fan will continue to run.

<u>Condensate float switch</u> — If the level of condensate in the drain pan rises too high, the condensate float switch will turn off the compressor and outdoor fan until the condensate level returns to normal. The indoor fan will continue to run.

Special operation, heating — Outdoor cooling units can be matched with heat pump indoor fan coil units to provide supplemental electric heat. All other operation is the same as a cooling only system, except these units have heating capability as follows: When the room thermostat initiates a call for heating, the electric heater is turned on. The indoor unit fan will start at the same time if it was not already running. When the heating requirement is satisfied, the room thermostat will open, and the heater will turn off.

Guide specifications

In-Ceiling Cassette Cooling Only Units HVAC Guide Specifications

Size Range: 2 to 3 Tons Cooling Capacity

Carrier Model Number: 40QKB

Part 1 — General

1.01 SYSTEM DESCRIPTION

Indoor, in-the-ceiling-mounted, direct-expansion fan coil. Units shall fit standard 2 ft x 2 ft and 2 ft x 4 ft ceiling grid.

1.02 QUALITY ASSURANCE

Unit shall be rated (when matched with appropriate outdoor unit) per ARI Standards 210/240. Units shall be certified by UL for sale in the USA and Canada.

1.03 DELIVERY, STORAGE, AND HANDLING

Units shall be stored and handled per unit manufacturer's recommendations.

1.04 WARRANTY

One-year parts.

Part 2 — Products

2.01 EQUIPMENT

A. General:

Indoor, direct-expansion, low-profile ($11^3/_4$ -in. high) in-ceiling fan coil. Fan coil shall be shipped complete with cooling coil, fan, fan motor, piping connectors, electrical controls, condensate pump, and hanging brackets. The grille is sold as a separate item.

B. Unit Cabinet:

Indoor cabinet shall be constructed of zinc-coated steel. Fully insulated discharge and inlet grilles shall be attractively styled, high-impact polystyrene. Cabinet shall have filter tracks and cleanable filters which shall be accessible from below with a $^{1}/_{4}$ -turn fastener. Adjacent room cooling to be provided by a simple knockout in the cabinet side panel, and cabinet shall have provisions to accommodate a limited amount of ductwork, if desired.

C. Fans:

Indoor fan shall be 3-speed centrifugal, direct-drive blower type with air intake in center of the unit and discharge on the perimeter. Air louvers shall be adjustable for 2, 3, or 4-way discharge.



D. Coil:

Coil shall be copper tube with aluminum fins and galvanized steel tube sheets. Fins shall be bonded to the tubes by mechanical expansion. A drip pan under the coil shall have a factory-installed condensate pump and drain connection for hose attachment to remove condensate.

E. Refrigerant Metering Device:

The unit shall have a refrigerant metering piston and body.

F. Motors:

Motors shall be totally enclosed and permanently lubricated with inherent overload protection.

G. Controls

Controls shall be 24~v, and shall be easily operated by the user from a wall-mounted thermostat. Float control shall be in the condensate sump to shut unit down in case of pump malfunction. The wall-mounted thermostat will have 3~fan speed selections, and an auto. mode. The thermostat is sold as a separate item. The R-22 refrigerant is controlled with a piston-type refrigerant metering device, and evaporator coil freeze protection shall be provided.

H. Filters:

Unit shall have factory-supplied cleanable filters.

I. Electrical Requirements:

Unit shall operate on 208/230~v, 60~Hz power supply as specified on the equipment schedule. Power and control connections shall have terminal block connections.

J. Special Features (Field Installed):

1. Fresh Air Intake Kit:

Kit shall include filter and duct connections to provide for outdoor ventilation air.

2. Power Ventilation Kit:

Kit must be used with the accessory fresh air kit when fresh air must be ducted in. The kit will overcome duct static to provide a constant supply of ventilation air. Kit consists of booster fan and adjustable speed control to properly balance fan to achieve required airflow rate.

3. Remote Room Sensor Kit:

Kit shall sense the air temperature at a remote location and send information by digital communication to the thermostat.



In-Ceiling Cassette Heat Pump Units

HVAC Guide Specifications

Size Range: 2 to 4 Tons Cooling Capacity

Carrier Model Number: 40QKE

Part 1 — General

1.01 SYSTEM DESCRIPTION

Indoor, in-the-ceiling-mounted, direct-expansion fan coil. Units shall fit standard 2 ft x 2 ft and 2 ft x 4 ft ceiling grid.

1.02 QUALITY ASSURANCE

Unit shall be rated (when matched with appropriate outdoor unit) per ARI Standards 210/240. Units shall be certified by UL for sale in the USA and Canada

1.03 DELIVERY, STORAGE, AND HANDLING

Units shall be stored and handled per unit manufacturer's recommendations.

1.04 WARRANTY

One-year parts.

Part 2 — Products

2.01 EQUIPMENT

A. General:

Indoor, direct-expansion, low-profile $(11^3/_4$ -in. high) in-ceiling fan coil. Fan coil shall be shipped complete with cooling coil, fan, fan motor, piping connectors, electrical controls, condensate pump, and hanging brackets. The grille is sold as a separate item.

B. Unit Cabinet:

Indoor cabinet shall be constructed of zinc-coated steel. Fully insulated discharge and inlet grilles shall be attractively styled, high-impact polystyrene. Cabinet shall have filter tracks and cleanable filters which shall be accessible from below with a $^{1}/_{4}$ -turn fastener. Adjacent room cooling to be provided by a simple knockout in the cabinet side panel, and cabinet shall have provisions to accommodate a limited amount of ductwork, if desired.

C. Fans:

Fan shall be 3-speed centrifugal, direct-drive blower type with air intake in center of the unit and discharge on the perimeter. Air louvers shall be adjustable for 2,3, or 4-way discharge.

D. Coil:

Coil shall be copper tube with aluminum fins and galvanized steel tube sheets. Fins shall be bonded to the tubes by mechanical expansion. A drip pan under the coil shall have a factory-installed condensate pump and drain connection for hose attachment to remove condensate.

NOTE: The units use the AccuRater® piston refrigerant metering device in the indoor unit (for cooling) and at the outdoor unit liquid line service valve (for heating).

E. Motors:

Motors shall be totally enclosed and permanently lubricated with inherent overload protection.

F. Electric Heater:

Units shall be equipped with factory-mounted electric heaters. Minimum protections shall include overcurrent and high temperature protection.

G. Controls:

Controls shall be 24 v, and shall be easily operated by the user from a wall-mounted thermostat. Float control shall be in the condensate sump to shut unit down in case of pump malfunction. The wall-mounted thermostat will have 3 fan speed selections, and an auto. mode and is sold as a separate item. The R-22 refrigerant is controlled with a piston-type refrigerant metering device, and evaporator coil freeze protection shall be provided.

H. Filters:

Unit shall have factory-supplied cleanable filters.

I. Electrical Requirements:

Unit shall operate on 208/230 v, 60 Hz power supply as specified on the equipment schedule. Power and control connections shall have terminal block connection.

J. Special Features (Field Installed):

1. Fresh Air Intake Kit:

Kit shall include filter and duct connections to provide for outdoor ventilation air (must be used with Power Ventilation Kit).

2. Power Ventilation Kit:

Kit must be used with the accessory fresh air kit when fresh air must be ducted in. The kit will overcome duct static to provide a constant supply of ventilation air. Kit consists of booster fan and adjustable speed control to properly balance fan to achieve required airflow rate.

3. Remote Room Sensor Kit:

Kit shall sense the air temperature at a remote location and send information by digital communication to the thermostat.